



Compliance Bulletin
Solid Waste
Broken Thermometer and Fluorescent Bulb Cleanup
Guidance for Households

reviewed/revised September 2009

Mercury spills can be very hazardous to human health and the environment if not cleaned up as soon as possible. Elemental mercury vaporizes slowly over time and can expose your family to toxic fumes for a very long time if not thoroughly cleaned up.

Applies to all Mercury Spills

- If a mercury fever thermometer or fluorescent bulb gets broken in your home, keep your children, pets and other persons out of the room where the spill occurred.
- The affected room should be isolated from other rooms in the house by closing connecting doors.
- Turn off the heat and any air circulation systems in the house and open all windows in the affected room to ventilate it to the outdoors.
- Leave the room to ventilate for at least 15 minutes before starting cleanup procedures.
- **Never** use a household vacuum cleaner (even one with a HEPA filter), broom or any type of cotton towel to try to wipe or blot up the spill since it will only scatter and spread the mercury.
- **Never** use household cleaning products to clean the spill, particularly products that contain ammonia or chlorine. These chemicals will react violently with mercury, releasing a toxic gas.
- Remove all jewelry before beginning cleanup as the mercury will bind to gold and silver.
- Prior to cleaning up the spill, put on old clothes or disposable coveralls, old shoes or disposable booties, and disposable rubber, latex or nitrile gloves. These items may need to be disposed of after you have completed cleanup of the spill. Place clean clothes, shoes and a trash bag just outside the room where the mercury spill occurred.
- After cleaning up the spill, carefully remove your gloves by grasping them at the wrist and pulling them off inside-out. Place the gloves in the trash bag for disposal.
- If you were wearing disposable coveralls and booties, carefully remove these items and place them in the trash bag for disposal.
- Any clothing or shoes that came in direct contact with the mercury should be placed in the trash bag. Clothing and shoes that did not come into direct contact with the mercury should be placed outdoors to air out. Once thoroughly aired out, the clothing can be laundered as normal and the shoes wiped off with damp paper towels. Put the used paper towels in the trash bag.
- The tools used to clean up the spill (index cards, tape, eyedropper) should also be placed in the trash bag and the trash bag double-wrapped in another trash bag.
- See the disposal section for information on how to handle the collected mercury and cleanup materials.
- Once the cleanup is completed, you may turn the heat or circulation systems back on, but keep the door to this room closed and the window open for at least a few hours, 24 - 48 hours would be best.

Liquid Spills on Hard Surfaces

If the spill involved liquid mercury like that in a broken thermometer and it occurred on a hard surface such as a counter or non-carpeted floor, the mercury probably shattered into tiny beads and spread in many directions.

- Hold a flashlight at an angle to the surface to determine the extent of the spill. The beads will reflect light from the flashlight. Check a large area around the spill and pay special attention to surface cracks, crevices and other hard to reach areas.
- While minimizing contact with the spill area, pick up any large pieces of glass from the broken thermometer and place them on a paper towel. Carefully fold the paper towel around the broken glass and put it in a zip-top bag. You may also use a glass jar with a metal lid (like a canning jar), but extra care must be taken not to break the jar after use.

- Use index cards or other stiff paper to gather the mercury beads and smaller glass fragments together. Start at the outer edges of the spill and push all of the material toward the center of the spill area. Scoop the mercury and glass fragments up using the index cards like a broom and dustpan. Place the recovered mercury into a second zip-top bag and put the index cards into the first zip-top bag.
- An eyedropper can be used to pick up any remaining mercury beads that are visible. Use your flashlight to locate remaining mercury beads and tilt the eyedropper at an angle to the surface to collect the mercury. Once all of the visible beads have been collected, put the recovered mercury into the second zip-top bag and the empty eyedropper in the first zip-top bag.
- To pick up very tiny beads of mercury, wrap a piece of masking tape, scotch tape or duct tape around your finger, sticky side out, and gently dab at the contaminated area. Place the tape in the first zip-top bag when finished.
- If possible, sprinkle the contaminated area with sulfur or zinc powder. Use enough to cover the area with a fine layer, but don't over-apply. Moisten the powder with water after you sprinkle it on the contaminated area. If you use zinc powder, you'll have to moisten the powder prior to applying it also. Rub the powder into any surface cracks and crevices with a damp paper towel. Use index cards to pick up the powder/mercury mixture and put all material into the first zip-top bag. Then rub the area with additional damp paper towels until all residues are gone. Sulfur and zinc powders bind with mercury to form a safer amalgam and help ensure that you get as much mercury as possible. These powders can be obtained at many garden centers, pharmacies, agriculture supply stores and safety equipment suppliers. You may also use a commercially available mercury spill powder containing sodium thiosulfate and finely powdered EDTA (ethylenediaminetetraacetic acid). If you use a commercial powder, follow the instructions provided on the container.)

Liquid Spills on Carpeted Surfaces

If the spill occurred on a carpeted surface, the contaminated section of carpet should be carefully removed and disposed of since it is almost impossible to effectively pick up mercury spilled onto porous surfaces.

- While minimizing contact with the spill area, pick up any large pieces of glass from the broken thermometer and place them on a paper towel. Carefully fold the paper towel around the broken glass and put it in a zip-top bag. You may also use a glass jar with a metal lid (like a canning jar), but extra care must be taken not to break the jar after use.
- Hold a flashlight at an angle to the surface to try to determine the extent of the spill. The beads will reflect light from the flashlight. Check a large area around the spill.
- Carefully cut out the contaminated section of carpet using a utility knife. Take care not to tilt or shake the carpet any more than necessary to minimize the spread of mercury. Gently place the contaminated carpet into a trash bag.
- Use your flashlight to check for any remaining mercury beads in the adjacent carpet and the bare sub-floor. If necessary, clean these areas following the instructions above for hard surfaces.

Liquid Spills Down a Drain

If the spill occurred near an open drain, it will likely get caught in the sink trap. The slow dissolution of the mercury in a sink trap can release mercury into the air and wastewater system for many years.

- Working over a tray or bucket, carefully remove the sink trap and pour the contents into the tray or bucket.
- After allowing it to settle, gently remove as much water as possible without disturbing the mercury. Use an eyedropper to recover all of the mercury. Place the recovered mercury into a zip-top bag and the empty eyedropper into a second zip-top bag. You may also use a glass jar with a metal lid (like a canning jar), but extra care must be taken not to break the jar after use.
- Replace the sink trap and dispose of the remaining water.

Broken Fluorescent, Compact Fluorescent or Other Mercury-Containing Light Bulbs

Fluorescent light bulbs contain a small amount of mercury sealed within the glass tubing. Although bulb manufacturers have reduced the amount of mercury in fluorescent bulbs, a certain amount is necessary for the bulb to function.

- While minimizing contact with the spill area, pick up any large pieces of glass from the broken bulb and place them on a paper towel. Carefully fold the paper towel around the broken glass and put it in a zip-top bag. You may also use a glass jar with a metal lid (like a canning jar), but extra care must be taken not to break the jar after use.
- Wrap a piece of masking tape, scotch tape or duct tape around your finger, sticky side out, and gently dab at the contaminated area to pick up the remaining glass fragments and powder. Place the tape in the zip-top bag when finished.
- If the bulb broke on a hard surface, wipe the area clean with a damp paper towel and place the used towel in the zip-top bag.
- If the bulb broke on the carpeting or a rug, you may vacuum the area where the bulb was broken after you have picked up all glass fragments and powder that you can with sticky tape.
- Remove the vacuum bag and put it into a trash bag. If the vacuum is a canister-type with no vacuum bag, empty the contents of the canister into a trash bag, wipe the canister with a damp paper towel, and put the paper towel into the trash bag. Double wrap the trash bag in another trash bag.
- Shut off the heat and any air circulation systems and open a window before vacuuming for the next several times you vacuum. Keep the heat and any air circulation systems off and the window open for at least 15 minutes after vacuuming is completed.

Disposal

The preferred method of disposal for unbroken mercury thermometers and fluorescent lamps, and the mercury from these items if they break, is to take them to a local household hazardous waste collection facility or event if one is available in your area. For information on household hazardous waste collection programs that accept mercury, visit www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251618176622. Your local public health agency may be aware of other recycling or disposal options in your area.

In the above instructions, you were asked to separate as much of the liquid mercury as possible from the rest of the cleanup tools and contaminated material. If a collection program is available in your area, thermometers, fluorescent bulbs, and/or the zip-top bag of recovered mercury should be taken to the collection site. The rest of the cleanup tools and mercury-contaminated material should be double-bagged in trash bags and can be disposed of in your regular household trash.

If a collection program is not available in your area, you should carefully sprinkle sulfur or zinc powder into the zip-top bag containing the liquid mercury, using only what is needed to absorb the mercury. Moisten the powder with a little water after you sprinkle it into the bag. If you use zinc powder, you'll have to moisten the powder prior to adding it to the zip-top bag also. Seal the zip-top bag and gently rub the outside of the bag to mix the powder and mercury. Sulfur and zinc powders bind with mercury to form a safer amalgam for disposal. These powders can be obtained at many garden centers, pharmacies, agriculture supply stores and safety equipment suppliers. You may also use a commercially available mercury spill powder. If you use a commercial powder, follow the instructions provided on the container. You may then put the zip-top bag of mercury in with the cleanup materials and double-bag it all for disposal in your regular household trash. Keep the trash bag outside in a safe area until trash pickup. Landfill disposal is the least preferred option, but may be the only option available.

Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, Co 80246-1530

Email: comments.hmwmd@state.co.us
Web: www.colorado.gov/cdphe/hm